

Frontiers of Matter Wave Optics School and Conference



12 - 23 September 2022
An ICTP Meeting
Trieste, Italy

Further information:
<http://indico.ictp.it/event/9825/>
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Matter wave interferometry has remarkably advanced with systems as diverse as electrons, neutrons, cold atoms, molecules and nanoparticles. The Summer School & Conference on Frontiers of Matter Wave Optics (FOMO) unites world experts in the field to review the state-of-art and to discuss new challenges.

Description:

Matter wave interferometers are essential tools in the exploration of the foundations of physics and have been developed into modern quantum sensors with applications in precision measurements, inertial navigation or geodesy. Since its beginning in 2010, Frontiers of Matter Wave Optics (FOMO) has become the most comprehensive bi-annual conference series in the field of matter-wave science. It combines one week of Summer School (12-16.9) with an international conference (19-23.9). In 2022 both meetings are hosted by the International Center for Theoretical Physics (ICTP) in Trieste/Italy, which is known for scientific excellence combined with international hospitality and scenic beauty. Contributed talks, poster sessions and excursions provide ample opportunity for discussions. An afternoon session on Sept. 22, will also honor the late Helmut Rauch and the beginnings of neutron matter-wave optics, almost 50 years ago.

Topics:

- Foundations of matter wave interferometry
- Matter-wave technologies: electrons, neutrons, atoms, macromolecules, nanoparticles
- Matter-wave sensors: gravimetry and geodesy
- Matter-waves in precision metrology: fundamental constants
- Matter-wave enabled navigation
- Tests of quantum physics at the interface to General Relativity & the Classical World
- Modeling of ultra-cold quantum devices
- Matter-wave science & industry

Applications:

The Summer School aims at training the next generation of theorists and experimentalists working on matter wave optics. The participants will be PhD students or postdocs new to the field. As in previous FOMO editions, the Summer School participants are strongly encouraged to attend the Conference as well and stay both weeks.

Directors:

M. ARNDT, University of Vienna, Austria
A. BASSI, INFN, University of Trieste & INFN, Italy
A. TROMBETTONI, University of Trieste & INFN, Italy

Local Organiser:

R. FAZIO, ICTP, Italy

Lecturers include:

B. BARRETT, University of New Brunswick, Canada
C. BURRAGE, University of Nottingham, UK
P. CLADE', Laboratoire Kastler Brossel, France
S. GERLICH, University of Vienna, Austria
A. LANDRAGIN, SYRTE, France
L. PEZZE', CNR-INO and QSTAR, Italy
N. POLI, University of Florence, Italy
W. SCHLEICH, Universität Ulm, Germany

Speakers include:

B. BATTELLIER, CNRS, France
O. BUCHMUELLER, CERN, Switzerland
U. DELIC, University of Vienna, Austria
A. DEREVIANKO, University of Nevada, USA
G. DUTIER, Université Paris, France
N. GAALLOU, Universität Hannover, Germany
S. GUELLATI-KHELIFA, Sorbonne University, France
Y. HASEGAWA, TU Wien, Austria
M. HOLYNSKI, University of Birmingham, UK
P. HOMMELHOFF, University of Erlangen, Germany
M. KASEVICH, Stanford University, USA
A. MINGUZZI, Université Grenoble Alpes, France
H. MÜLLER, UC Berkeley, USA
M. OLSHANII, Boston University, USA
M. PATERNOSTRO, Queen's University Belfast, UK
H. PERRIN, Université Sorbonne, France
E. RASEL, University of Hannover, Germany
J. RUDOLPH, Stanford University, USA
D. SABULSKY, Université Bordeaux, France
W. SCHLEICH, Ulm University, Germany
J. SCHMIEDMAYER, TU Wien, Austria
W. VON KLITZING, IESL-FORTH, Greece
A. ZEILINGER, University of Vienna, Austria
M. ZHAN, Chinese Academy of Sciences, China

Tutors:

F. CESA, University of Trieste, Italy
P. FONTANA, SISSA, Italy
A. ZALBEIK-DORMAYER, University of Vienna, Austria

How to apply:

Online application:
<http://indico.ictp.it/event/9825/>

Female scientists are encouraged to apply.

Grants:

A limited number of grants are available to support the attendance of selected participants, with priority given to participants from developing countries. There is no registration fee.

Deadline:

30 July 2022



The Abdus Salam
**International Centre
for Theoretical Physics**
www.ictp.it
Trieste, Italy

